

CLAIMS

That which is claimed is:

1. An article of footwear having an upper and a sole structure, the upper comprising:
an exterior layer forming at least a portion of an exterior of the upper, the exterior layer including a plurality of incisions that extend through the exterior layer; and
an interior layer located adjacent at least a portion of an inner surface of the exterior layer, the interior layer being exposed through at least a portion of the incisions,
wherein a first portion of the incisions are oriented to provide stretch in a direction that extends between a medial side and a lateral side of the upper, and a second portion of the incisions are positioned adjacent the medial side and in a forefoot region of the upper.
2. The article of footwear recited in claim 1, wherein the first portion of the incisions are oriented perpendicular to the second portion of the incisions.
3. The article of footwear recited in claim 1, wherein the first portion of the incisions are oriented longitudinally with respect to the footwear, and the second portion of the incisions are oriented laterally with respect to the footwear.
4. The article of footwear recited in claim 1, wherein at least a portion of the incisions form a plurality of lines on the upper, and the incisions in adjacent lines are offset from each other.
5. The article of footwear recited in claim 1, wherein the sole structure includes a plurality of sipes that extend upward into the sole structure.
6. The article of footwear recited in claim 5, wherein the sipes include:
a first sipe that extends longitudinally through an entire length of the sole structure;

a second sipe that extends longitudinally through only a portion of the length of the sole structure; and
at least a third sipe that extends laterally.

7. The article of footwear recited in claim 6, wherein a width of the third sipe is greater than a width of the first sipe and the second sipe, thereby forming a reverse flex line in the sole structure.

8. The article of footwear recited in claim 7, wherein a single third sipe is present in a male version of the footwear and at least two of the third sipe are present in a female version of the footwear.

9. The article of footwear recited in claim 5, wherein a thickness of the connecting portion varies longitudinally.

10. The article of footwear recited in claim 5, wherein the connecting portion has a first thickness in a forefoot region of the footwear, the connecting portion has a second thickness in a midfoot region of the footwear, and the connecting portion has a third thickness in a heel region of the footwear, the first and third thicknesses being less than the second thickness.

11. The article of footwear recited in claim 5, wherein the sole structure has a first overall thickness in a forefoot region of the footwear, and the sole structure has a second overall thickness in a heel region of the footwear, the first thickness being less than the second thickness.

12. The article of footwear recited in claim 11, wherein a difference between the first overall thickness and the second overall thickness is greater in a female version of the footwear than in a male version of the footwear.

13. The article of footwear recited in claim 5, wherein at least a portion of the sole structure is formed through a molding process that includes a mold with blades for forming the sipes.

14. The article of footwear recited in claim 13, wherein the molding process is selected from a group consisting of injection molding, pouring, and compression molding.

15. The article of footwear recited in claim 1, wherein at least a portion of a heel region of the upper is formed from a single layer of material.

16. The article of footwear recited in claim 15, wherein the single layer of material is the interior layer.

17. The article of footwear recited in claim 1, wherein the interior layer forms at least a portion of an interior surface of the upper throughout a longitudinal length of the footwear, and the interior layer forms both the interior surface and an exterior surface of the upper in a heel region of the upper.

18. An article of footwear comprising:

an upper for receiving a foot of a wearer, the upper including:

an exterior layer that forms at least a portion of an exterior of the upper, the exterior layer including a plurality of incisions that extend through the exterior layer, and

an interior layer located adjacent at least a portion of an inner surface of the exterior layer, the interior layer being exposed through at least a portion of the incisions; and

a sole structure secured to the upper and having a connecting portion and a plurality of discrete sole elements extending downward from the connecting portion, the connecting portion being positioned adjacent the upper and the sole elements being separated by a plurality of sipes that extend upward into the sole structure.

19. The article of footwear recited in claim 18, wherein a first group of the incisions extend in a longitudinal direction that corresponds with a direction between a forefoot region and a heel region of the footwear, and a second group of the incisions extend in a lateral direction that corresponds with a direction between a medial side and a lateral side of the footwear.

20. The article of footwear recited in claim 19, wherein the second group of incisions are positioned in a portion of the upper corresponding with a hallux of the wearer.

21. The article of footwear recited in claim 18, wherein the first group of the incisions are located on at least one of a medial side and a lateral side of the footwear.

22. The article of footwear recited in claim 21, wherein a portion of the first group of incisions are located on an instep area of the footwear.

23. The article of footwear recited in claim 18, wherein the incisions form a plurality of lines on the upper, and the incisions in adjacent lines are offset from each other.

24. The article of footwear recited in claim 18, wherein at least a portion of a heel region of the upper is formed from a single layer of material.

25. The article of footwear recited in claim 24, wherein the single layer of material is the interior layer.

26. The article of footwear recited in claim 18, wherein the interior layer forms at least a portion of an interior surface of the upper throughout a longitudinal length of the footwear, and the interior layer forms both the interior surface and an exterior surface of the upper in a heel region of the upper.

27. The article of footwear recited in claim 18, wherein the sipes include:
a first sipe that extends longitudinally through an entire length of the sole structure;
a second sipe that extends longitudinally through only a portion of the length of the sole structure; and
a plurality of third sipes that extend laterally from a medial side to a lateral side of the sole structure.

28. The article of footwear recited in claim 27, wherein a first portion of the third sipes are positioned in a forefoot region of the footwear and a second portion of the third sipes are positioned in a heel region of the footwear, the first portion of the third sipes being angled with respect to the second portion of the third sipes.

29. The article of footwear recited in claim 28, wherein the first portion of the third sipes are angled with respect to the second portion of the third sipes.

30. The article of footwear recited in claim 27, wherein a width of at least one of the third sipes is greater than a width of the first sipe and the second sipe, thereby forming a reverse flex line in the sole structure.

31. The article of footwear recited in claim 30, wherein a female version of the footwear includes at least two of the third sipes with widths that are greater than the width of the first sipe

and the second sipe, and a male version of the footwear includes one of the third sipes with the width that is greater than the width of the first sipe and the second sipe.

32. The article of footwear recited in claim 27, wherein the plurality of third sipes is at least ten sipes.

33. The article of footwear recited in claim 18, wherein a thickness of the connecting portion varies longitudinally.

34. The article of footwear recited in claim 18, wherein the connecting portion has a first thickness in a forefoot region of the footwear, the connecting portion has a second thickness in a midfoot region of the footwear, and the connecting portion has a third thickness in a heel region of the footwear, the first and third thicknesses being less than the second thickness.

35. The article of footwear recited in claim 34, wherein the first thickness is less than the third thickness.

36. The article of footwear recited in claim 18, wherein the sole structure has a first overall thickness in a forefoot region of the footwear, and the sole structure has a second overall thickness in a heel region of the footwear, the first thickness being less than the second thickness.

37. The article of footwear recited in claim 36, wherein a difference between the first overall thickness and the second overall thickness is greater in a female version of the footwear than in a male version of the footwear.

38. The article of footwear recited in claim 37, wherein the difference between the first overall thickness and the second overall thickness in the female version is approximately 12

millimeters, and the difference between the first overall thickness and the second overall thickness in the male version is approximately 8 millimeters.

39. The article of footwear recited in claim 18, wherein the sole structure is formed through a molding process that includes a mold with blades for forming the sipes.

40. The article of footwear recited in claim 39, wherein the molding process is selected from a group consisting of injection molding, pouring, and compression molding.

41. An article of footwear having an upper and a sole structure secured to the upper, the sole structure comprising:

 a connecting portion positioned adjacent the upper and extending along a longitudinal length of the upper, the connecting portion having:

 a first thickness in a forefoot region of the footwear,

 a second thickness in a midfoot region of the footwear, and

 a third thickness in a heel region of the footwear,

 the first and third thicknesses being less than the second thickness; and

 a plurality of discrete sole elements extending downward from the connecting portion, the sole elements being separated by a plurality of sipes that extend upward into the sole structure.

42. The article of footwear recited in claim 41, wherein the first thickness is less than the third thickness.

43. The article of footwear recited in claim 41, wherein the plurality of sipes include a first sipe and a second sipe that extend in a longitudinal direction with respect to the footwear.

44. The article of footwear recited in claim 43, wherein the first sipe extends through an entire length of the sole structure, and the second sipe extends through only a portion of the length of the sole structure.

45. The article of footwear recited in claim 44, wherein the first sipe is spaced inward from a lateral side of the sole structure in at least a forefoot region of the footwear, and the first sipe is approximately centered between the lateral side and a medial side of the sole structure in a heel region of the footwear.

46. The article of footwear recited in claim 45, wherein the first sipe exhibits a curved configuration.

47. The article of footwear recited in claim 43, wherein the second sipe is positioned in at least a forefoot region of the footwear, and the second sipe is approximately centered between a lateral side and a medial side of the sole structure.

48. The article of footwear recited in claim 43, wherein the plurality of sipes also include a plurality of third sipes that extend laterally from a medial side to a lateral side of the sole structure.

49. The article of footwear recited in claim 48, wherein a first portion of the third sipes are positioned in a forefoot region of the footwear and a second portion of the third sipes are positioned in a heel region of the footwear, the first portion of the third sipes being angled with respect to the second portion of the third sipes.

50. The article of footwear recited in claim 49, wherein the first portion of the third sipes are angled with respect to the second portion of the third sipes..

51. The article of footwear recited in claim 48, wherein a width of at least one of the third sipes is greater than a width of the first sipe and the second sipe, thereby forming a reverse flex line in the sole structure.

52. The article of footwear recited in claim 51, wherein a female version of the footwear includes at least two of the third sipes with widths that are greater than the width of the first sipe and the second sipe, and a male version of the footwear includes one of the third sipes with the width that is greater than the width of the first sipe and the second sipe.

53. The article of footwear recited in claim 48, wherein the plurality of the third sipes is at least ten sipes.

54. The article of footwear recited in claim 43, wherein a depth of at least the first sipe increases as the first sipe extends from a forefoot region of the footwear to a heel region of the footwear.

55. The article of footwear recited in claim 41, wherein the sole structure has a first overall thickness in a forefoot region of the footwear, and the sole structure has a second overall thickness in a heel region of the footwear, the first thickness being less than the second thickness.

56. The article of footwear recited in claim 55, wherein a difference between the first overall thickness and the second overall thickness is greater in a female version of the footwear than in a male version of the footwear.

57. The article of footwear recited in claim 56, wherein the difference between the first overall thickness and the second overall thickness in the female version is approximately 12

millimeters, and the difference between the first overall thickness and the second overall thickness in the male version is approximately 8 millimeters.

58. The article of footwear recited in claim 41, wherein the sole structure is formed through a molding process that includes a mold with blades for forming the sipes.

59. The article of footwear recited in claim 58, wherein the molding process is selected from a group consisting of injection molding, pouring, and compression molding.

60. The article of footwear recited in claim 41, wherein at least one outsole element is secured to a lower surface of at least one of the sole elements.

61. The article of footwear recited in claim 41, wherein the upper includes:
an exterior layer forming at least a portion of an exterior of the upper, the exterior layer including a plurality of incisions that extend through the exterior layer; and
an interior layer located adjacent at least a portion of an inner surface of the exterior layer, the interior layer being exposed through at least a portion of the incisions.

62. The article of footwear recited in claim 61, wherein a first portion of the incisions are oriented to provide stretch in a direction that extends between a medial side and a lateral side of the upper, and a second portion of the incisions are positioned adjacent the medial side and in a forefoot region of the upper.

63. An article of footwear having an upper and a sole structure secured to the upper, the sole structure comprising a plurality of discrete sole elements extending downward from a connecting portion, the sole elements being separated by a plurality of sipes that extend upward into the sole structure, the plurality of sipes including:

a first sipe oriented in a longitudinal direction with respect to the footwear, the first sipe extending through an entire length of the sole structure, the first sipe being spaced inward from a lateral side of the sole structure in at least a forefoot region of the footwear, and the first sipe being approximately centered between the lateral side and a medial side of the sole structure in a heel region of the footwear;

a second sipe that extends in the longitudinal direction, the second sipe extending through only a portion of the length of the sole structure; and

a plurality of third sipes that extend laterally from the medial side to the lateral side of the sole structure.

64. The article of footwear recited in claim 63, wherein the first sipe exhibits a curved configuration.

65. The article of footwear recited in claim 63, wherein the first sipe exhibits an s-shaped configuration.

66. The article of footwear recited in claim 63, wherein a depth of the first sipe increases as the first sipe extends from the forefoot region to the heel region.

67. The article of footwear recited in claim 63, wherein the second sipe is positioned in at least the forefoot region of the footwear, and the second sipe is approximately centered between the lateral side and the medial side.

68. The article of footwear recited in claim 63, wherein a first portion of the third sipes are positioned in the forefoot region and a second portion of the third sipes are positioned in the heel region, the first portion of the third sipes being angled with respect to the second portion of the third sipes.

69. The article of footwear recited in claim 68, wherein the first portion of the third sipes are angled with respect to the second portion of the third sipes.

70. The article of footwear recited in claim 63, wherein a width of at least one of the third sipes is greater than a width of other ones of the third sipes, thereby forming a reverse flex line in the sole structure.

71. The article of footwear recited in claim 70, wherein a female version of the footwear includes at least two of the third sipes with widths that are greater than the width of the other ones of the third sipes, and a male version of the footwear includes only one of the third sipes with the width that is greater than the width of the other ones of the third sipes.

72. The article of footwear recited in claim 63, wherein the plurality of the third sipes is at least ten sipes.

73. The article of footwear recited in claim 63, wherein the upper includes:
an exterior layer that forms at least a portion of an exterior of the upper, the exterior layer including a plurality of incisions that extend through the exterior layer, and
an interior layer located adjacent at least a portion of an inner surface of the exterior layer, the interior layer being exposed through at least a portion of the incisions.

74. The article of footwear recited in claim 73, wherein a first group of the incisions extend in the longitudinal direction, and a second group of the incisions extend in the lateral direction.

75. The article of footwear recited in claim 63, wherein at least a portion of a heel region of the upper is formed from a single layer of material.

76. The article of footwear recited in claim 75, wherein the single layer of material forms at least a portion of an interior surface of the upper, and the single layer of material forms both the interior surface and an exterior surface of the upper in the heel region of the upper.

77. A method of manufacturing articles of footwear having a female version and a male version, the method comprising steps of:

molding sole structures of the articles of footwear to each include a connecting portion and a plurality of discrete sole elements extending from the connecting portion, the sole elements being separated by a plurality of sipes that extend into the sole structures;

structuring the sole structures to have a first thickness in a forefoot region and a second thickness in a heel region; and

forming the female version such that a differential between the first thickness and the second thickness is greater than a corresponding differential in the male version.

78. The method recited in claim 77, wherein the step of molding includes forming at least one of the sipes to have a greater width than other sipes.

79. The method recited in claim 77, wherein the step of molding includes forming the female version to include at least two sipes with a greater width than other sipes, and forming the male version to include only one sipe with a greater width than other sipes.

80. The method recited in claim 77, wherein the step of molding includes placing blades within a mold to for forming the sipes.

81. The method recited in claim 80, further including a step of selecting a molding process from a group consisting of injection molding, pouring, and compression molding.

82. An article of footwear comprising:

an upper formed from at least one material layer that includes a plurality of linear incisions, the upper having lesser stretch in a first direction that corresponds with an orientation of the incisions, and the upper having greater stretch in a second direction that is orthogonal to the first direction; and

a sole structure at least partially formed from a polymer foam material, the sole structure including a plurality of sipes that extend into the polymer foam material and form flexion lines in the sole structure, the sipes defining a plurality of discrete sole elements that are separated by the sipes.

83. The article of footwear recited in claim 82, wherein a first group of the incisions extend in a longitudinal direction that corresponds with a direction between a forefoot region and a heel region of the footwear, and a second group of the incisions extend in a lateral direction that corresponds with a direction between a medial side and a lateral side of the footwear.

84. The article of footwear recited in claim 83, wherein the second group of the incisions are positioned in the forefoot region and adjacent a medial side of the upper.

85. The article of footwear recited in claim 82, wherein the sipes include:

a first sipe oriented in a longitudinal direction with respect to the footwear, the first sipe extending through an entire length of the sole structure, the first sipe being spaced inward from a lateral side of the sole structure in at least a forefoot region of the footwear, and the first sipe being approximately centered between the lateral side and a medial side of the sole structure in a heel region of the footwear;

a second sipe that extends in the longitudinal direction, the second sipe extending through only a portion of the length of the sole structure; and a plurality of third sipes that extend laterally from the medial side to the lateral side of the sole structure.

86. The article of footwear recited in claim 82, wherein the at least one material layer includes an exterior layer and an interior layer, the exterior layer including the incisions.

87. The article of footwear recited in claim 86, wherein at least a portion of a heel region of the upper is formed from only the interior layer.

88. The article of footwear recited in claim 86, wherein the interior layer forms at least a portion of an interior surface of the upper throughout a longitudinal length of the footwear, and the interior layer forms both the interior surface and an exterior surface of the upper in a heel region of the upper.

89. An article of footwear having an upper and a sole structure, the upper comprising:
an exterior layer forming at least a portion of an exterior of the upper, the exterior layer including a plurality of incisions that extend through the exterior layer, the incisions being formed through a laser-etching process; and
an interior layer located adjacent at least a portion of an inner surface of the exterior layer, the interior layer being unsecured to the exterior layer in areas that are proximal to the incisions, and the interior layer being exposed through at least a portion of the incisions.

90. The article of footwear recited in claim 89, wherein a first portion of the incisions are oriented to provide stretch in a direction that extends between a medial side and a lateral side of

the upper, and a second portion of the incisions are positioned adjacent the medial side and in a forefoot region of the upper.

91. The article of footwear recited in claim 89, wherein the first portion of the incisions are oriented perpendicular to the second portion of the incisions.

92. The article of footwear recited in claim 89, wherein the first portion of the incisions are oriented longitudinally with respect to the footwear, and the second portion of the incisions are oriented laterally with respect to the footwear.

93. The article of footwear recited in claim 89, wherein at least a portion of the incisions form a plurality of lines on the upper, and the incisions in adjacent lines are offset from each other.

94. The article of footwear recited in claim 89, wherein at least a portion of a heel region of the upper is formed from a single layer of material.

95. The article of footwear recited in claim 94, wherein the single layer of material is the interior layer.

96. The article of footwear recited in claim 89, wherein the interior layer forms at least a portion of an interior surface of the upper throughout a longitudinal length of the footwear, and the interior layer forms both the interior surface and an exterior surface of the upper in a heel region of the upper.

97. An article of footwear having an upper and a sole structure, the sole structure comprising: a connecting portion positioned adjacent the upper;

a plurality of discrete sole elements extending downward from the connecting portion, the sole elements being separated by a plurality of sipes that extend upward into the sole structure; and

an insole having a plurality of flexion lines that correspond with positions of at least a portion of the sipes.

98. The article of footwear recited in claim 97, wherein the flexion lines are defined in a lower surface of the insole.

99. The article of footwear recited in claim 97, wherein the sipes and the flexion lines include:

a first sipe and a first flexion line that extends longitudinally through substantially an entire length of the sole structure;

a second sipe and a second flexion line that extends longitudinally through only a portion of the length of the sole structure; and

a plurality of third sipes and third flexion lines that extend laterally from a medial side to a lateral side of the sole structure.

100. The article of footwear recited in claim 99, wherein a width of at least one of the third sipes is greater than a width of the first sipe and the second sipe, thereby forming a reverse flex line in the sole structure.

101. The article of footwear recited in claim 97, wherein a thickness of the connecting portion varies longitudinally.